CD offers energy conservation, mold prevention training

by Dahtzen Chu

A new CD ROM captures materials presented in a training course to help facility managers understand energy conservation mandates and take measures to prevent mold and mildew in buildings. The CD is available for free from the U.S. Army Engineer Research and Development Center's Construction Engineering Research Laboratory (see contact information below).

Public Law 109-58 (also known as EPAct 2005) requires that newly constructed federal facilities achieve 30 percent better energy consumption than comparable facilities designed in accordance with American Society for Heating, Refrigerating, and Air-conditioning Engineers Standard 90.1-2004. The Energy Independence and Security Act of 2007 and Unified Facilities Criteria 3-400 state similar requirements for major retrofit projects. Combined with this ever-increasing focus on energy conservation is the growing need to remediate and prevent serious, extensive mold and mildew challenges that have been a longstanding issue in buildings at many Army installations.

The Army spends millions of dollars annually for repetitive, costly mold and mildew remediation, especially at installations located in hot, humid climates. To provide healthy, comfortable facilities for Soldiers, Army barracks to be newly constructed or retrofitted must meet the EPAct 2005 energy conservation requirement and have a low potential for mold and mildew development. Prevention of mold and mildew contamination though appropriate designs for new construction and major renovation projects, along with integration of building systems that meet hygro-thermal requirements, will improve Soldiers' health and well being and reduce remediation costs to the Army. To help achieve these goals, U.S. Army Corps of Engineers engineering/construction and Army directorate of public works staffs require training on the latest developments in both energy conservation and mold prevention.

Headquarters USACE had previously funded CERL to conduct energy training workshops to show participants how to uniformly deal with contractors bidding against the USACE Model Request for Proposal for new construction. Building on the success of these earlier workshops, USACE and the Installation Management Command jointly funded CERL in 2009 to develop and present a new curriculum on energy conservation/mold and mildew remediation at two workshops in Fayetteville, N.C., and one in Honolulu, Hawaii.

This effort required developing a syllabus and instructional materials on energy and mold/mildew topics with application across a range of different geographic and climatic locations. Key topics in the workshop curriculum include:

- Energy conservation requirements (EPAct 2005, EISA 2007, ASHRAE 90.1) and strategies for energy conservation in new barracks and retrofits.
- Building envelope insulation levels and technologies for new construction and retrofits.
- Humidity control and building envelope air tightness requirements and the

All training sessions were well attended, like this workshop at Fayetteville, N.C.

technologies and best construction practices necessary to achieve these requirements.
- Vapor diffusion retarders, air flow retarders and roof/attic ventilation.
- Indoor air quality and sources of mold and mildew in barracks and their control.
- Mechanical systems and controlled ventilation.

The effort also required identifying and assembling a diverse team of subject matter experts to develop and present the workshop materials, and working with USACE and IMCOM to identify representative Corps and garrison participants from Army installations.

The training targeted Corps District and DPW engineers, architects, and contractors in the United States and overseas, especially those in climatic zones susceptible to mold and mildew in their buildings. Three hundred workshop participants attended the sessions on best practices and technologies for better energy efficiency to meet EPAct 2005, improved mold control through better building envelope technologies, construction and testing methods to increase building air tightness, and better humidity control. Information gleaned from the courses had immediate application to the Army's various barracks renovation and new construction projects.

While the workshops were well attended, many other facility managers could benefit from the materials in the course. The CD ROM available from CERL contains 53 presentations on energy conservation and mold prevention and 22 documents on energy and water conservation design requirements for Sustainment, Restoration, and Modernization and Military Construction projects. To receive a copy of the CD, please contact Dahtzen Chu, 217-373-6784, dahtzen.chu@usace.army.mil.

POC: Dale L. Herron, 217-373-7278, dale.l.herron@usace.army.mil

Dahtzen Chu is a general engineer at ERDC-CERL in Champaign, Ill.